

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

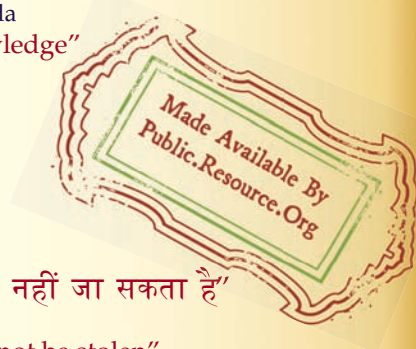
IS 8278 (1976): Diphenylamine [PCD 9: Organic Chemicals Alcohols and Allied Products and Dye Intermediates]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



“पुनर्पष्ट १९९५”
“RE-AFFIRMED 1995”

IS : 8278 - 1976

(Reaffirmed 2001)

Indian Standard

SPECIFICATION FOR DIPHENYLAMINE

UDC 547.551.2

“पुनर्पष्ट १९९०”
“REAFFIRMED 1990”



© Copyright 1977

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Rs 6.00

Gr 3

March 1977

Indian Standard

SPECIFICATION FOR DIPHENYLAMINE

Organic Chemicals (Miscellaneous) Sectional Committee, CDC 4

Chairman

SHRI S. L. VENKITESWARAN

Representing

Amar Dye-Chem Ltd, Bombay

Members

DR K. AGHORAMURTHY	Indian Petrochemicals Corporation Ltd, Vadodara
DR K. C. SINGHAL (<i>Alternate</i>)	
SHRI P. V. ARUR	Hindustan Organic Chemicals Ltd, Rasayani
SHRI A. K. BHATTACHARYA	National Test House, Calcutta
DR D. K. DAS (<i>Alternate</i>)	
DR S. P. BHATTACHARYA	Directorate General of Technical Development, New Delhi
SHRI S. K. CHAKRABORTY	The Development Commissioner, Small Scale Industries, New Delhi
DR D. CHOUDHURY	Carbide Chemicals Company, Division of Union Carbide India Ltd, Bombay
SHRI J. BANERJEE (<i>Alternate</i>)	
DR S. K. DATTA	National Organic Chemical Industries Ltd, Bombay
SHRI S. S. AHLUWALIA (<i>Alternate</i>)	
DR HARI SINGH	Ministry of Defence (R & D)
SHRI N. G. S. IYER	Directorate General of Supplies & Disposals (Inspection Wing), New Delhi
SHRI G. C. MOTWANI	Indian Chemical Manufacturers' Association, Calcutta
SHRI M. S. RAMAMURTHY (<i>Alternate</i>)	
SHRI P. S. RAMACHANDRAN	Directorate General of Health Services, New Delhi
DR S. S. GOTHOSKAR (<i>Alternate</i>)	
DR U. T. BHALE RAO	Regional Research Laboratory (CSIR), Hyderabad
DR R. V. VENKATARATNAM (<i>Alternate</i>)	
SHRI SANTOKH SINGH	National Chemical Industries, New Delhi
SHRI PRITHVI PAL SINGH (<i>Alternate</i>)	
DR S. R. SARVOTHAM	Hindustan Antibiotics Ltd, Pune
DR I. P. BUCH (<i>Alternate</i>)	
SHRI A. K. SENGUPTA	Durgapur Chemicals Ltd, Durgapur
SHRI P. N. GHOSH (<i>Alternate</i>)	
SHRI N. N. SHANBHAG	Herdillia Chemicals Ltd, Bombay
SHRI I. FERNANDES (<i>Alternate</i>)	
DR D. R. SHRIDHAR	Indian Drugs & Pharmaceuticals Ltd, New Delhi

(Continued on page 2)

© Copyright 1977

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI L. R. SUD	Ministry of Defence (DGI)
SHRI P. N. AGARWAL (<i>Alternate</i>)	
SHRI M. R. TYAGARAJAN	S. T. C. of India, New Delhi
DR G. M. SAXENA, Director (Chem)	Director General, ISI (<i>Ex-officio Member</i>)
 <i>Secretary</i>	
SHRI S. C. KALRA Assistant Director (Chem) , ISI	

Industrial Organic Chemicals Subcommittee, CDC 4:14

<i>Convener</i>	
DR G. RAMANA RAO	Indian Drugs & Pharmaceuticals Ltd, New Delhi

<i>Members</i>	
DR S. N. MAHAJAN (<i>Alternate to</i> Dr G. Ramana Rao)	
SHRI B. M. BRAHME	Atic Industries Ltd, Bulsar
SHRI K. K. CHHAYA	Excel Industries Ltd, Bombay
SHRI M. P. MISTRY (<i>Alternate</i>)	
DR S. K. DATTA	National Organic Chemical Industries Ltd, Bombay
SHRI S. S. AHLUWALIA (<i>Alternate</i>)	
SHRI R. B. DESAI	Cibatual Ltd, Atul
SHRI F. M. FAQUIH	Morani Chemicals Pvt Ltd, Bombay
SHRI D. H. KASHYAP (<i>Alternate</i>)	
DR O. P. MITTAL	Suhrid Geigy Ltd, Vadodara
SHRI O. P. NARANG	Atul Drug House, Bombay
SHRI A. P. MODY (<i>Alternate</i>)	
SHRI S. S. SAVLIWALA	Alta Laboratories Pvt Ltd, Khopoli
SHRI R. R. BHAT (<i>Alternate</i>)	
SHRI N. N. SHANBHAG	Herdillia Chemicals Ltd, Bombay
SHRI I. FERNANDES (<i>Alternate</i>)	
DR S. SOMASEKHARA	Sarabhai Chemicals, Vadodara
DR G. S. MEWADA (<i>Alternate</i>)	
DR M. K. UNNI	National Chemical Laboratory (CSIR), Pune
DR M. G. VAIDYA	Hindustan Antibiotics Ltd, Pune
DR P. V. DESHMUKH (<i>Alternate</i>)	
SHRI H. K. VENKATARAMIAH	Hindustan Organic Chemicals Ltd, Rasayani
SHRI A. D. PATANKAR (<i>Alternate</i>)	

Indian Standard

SPECIFICATION FOR DIPHENYLAMINE

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 2 November 1976, after the draft finalized by the Organic Chemicals (Miscellaneous) Sectional Committee had been approved by the Chemical Division Council.

0.2 Diphenylamine is used in the manufacture of dyes, rubber chemicals, pesticides, explosives, pharmaceuticals and in stabilizing nitrocellulose explosives and celluloid. It is also used in analytical chemistry for the detection of nitrate, chlorate and other oxidizing substances.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for diphenylamine.

2. REQUIREMENTS

2.1 The material shall be in the form of small crystals, flakes, lumps or solid mass free from foreign matter and visible impurities. It shall be colourless to pale yellow in colour and when molten shall give a clear colourless to brown liquid. It shall possess the characteristic odour of diphenylamine.

2.2 The material shall also comply with the requirements given in Table 1 when tested according to the methods prescribed in Appendix A. Reference to the relevant clauses of Appendix A is given in col 4 of Table 1.

*Rules for rounding off numerical values (*revised*).

TABLE 1 REQUIREMENTS FOR DIPHENYLAMINE

(Clause 2.2)

Sl. No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST (REF TO CL No. IN APPENDIX A)
(1)	(2)	(3)	(4)
i)	Crystallizing point, <i>Min</i>	52.5°C	A-2
ii)	Moisture content, percent by mass, <i>Max</i>	0.10	A-3
iii)	Acidity (as H_2SO_4), percent by mass, <i>Max</i>	0.005	A-4
iv)	Sulphated ash, percent by mass, <i>Max</i>	0.05	A-5
v)	Primary amines (as aniline), percent by mass, <i>Max</i>	0.30	A-6
vi)	Organic bases alkaline to methyl orange (as aniline), percent by mass, <i>Max</i>	0.30	A-7
vii)	Organic matter insoluble in ether- alcohol mixture, percent by mass, <i>Max</i>	0.03	A-8

3. PACKING AND MARKING

3.1 Packing — The material shall be packed, stored and transported in mild steel or fibre drums with polyethylene lining or other suitable lining or as agreed to between the purchaser and the supplier. In its molten form the material shall be directly packed in mild steel drums.

3.2 Marking — The containers shall be suitably and legibly marked with the following:

- Name of the material;
- Manufacturer's name and his recognized trade-mark, if any;
- Net mass of the material in the container; and
- Lot or batch number, in code or otherwise.

3.2.1 The containers may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4. SAMPLING

4.1 Representative samples of the material shall be drawn and their conformity to the standard shall be judged as prescribed in Appendix B.

APPENDIX A

(Clause 2.2)

METHODS OF TEST FOR DIPHENYLAMINE

A-1. QUALITY OF REAGENTS

A-1.1 Unless specified otherwise, pure chemicals and distilled water (see IS:1070-1960*) shall be employed in the tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

WARNING — Care shall be taken to guard against splashes of hot material in the eyes or on the face and hands, particularly while stirring.

A-2. DETERMINATION OF CRYSTALLIZING POINT

A-2.1 Procedure — Carry out the determination of crystallizing point according to the method as prescribed in IS:5813-1970†.

A-3. DETERMINATION OF MOISTURE

A-3.1 Carry out the determination of moisture according to the method as prescribed in IS:2362-1973‡.

*Specification for water, distilled quality (revised).

†Method for determination of crystallizing point.

‡Determination of water by Karl Fischer method (first revision).

A-4. DETERMINATION OF ACIDITY

A-4.0 Outline of the Method — The material is titrated with standard sodium hydroxide solution and from the volume of standard sodium hydroxide solution used acidity is calculated as sulphuric acid.

A-4.1 Reagents

A-4.1.1 Standard Sodium Hydroxide Solution — 0.01 N.

A-4.1.2 Hydrochloric Acid Solution — approximately 0.01 N.

A-4.1.3 Phenolphthalein Indicator — 0.5 percent (m/v). Dissolve 0.5 g of phenolphthalein in 100 ml of rectified spirit and make it faintly pink by the addition of sodium hydroxide solution.

A-4.1.4 Neutralized Rectified Spirit — Add a few drops of phenolphthalein indicator to 50 ml of rectified spirit, add sodium hydroxide solution until a pink colour persists. Neutralize the excess of sodium hydroxide by adding hydrochloric acid until the pink colour is just discharged.

A-4.2 Procedure — Weigh accurately 10.0 g of the material to the nearest 0.1 g in a 250-ml conical flask. Add 50 ml of neutralized rectified spirit and dissolve the material by warming, if necessary and then add a few drops of phenolphthalein indicator. Titrate the contents with standard sodium hydroxide solution, using a microburette, until the pink colour persists for 10 seconds.

A-4.3 Calculation

$$\text{Acidity (as H}_2\text{SO}_4\text{), percent by mass} = \frac{4.904 \times V \times N}{M}$$

where

V = volume in ml of standard sodium hydroxide solution,

N = normality of standard sodium hydroxide solution, and

M = mass in g of the material taken for the test.

A-5. DETERMINATION OF SULPHATED ASH

A-5.1 Apparatus

A-5.1.1 Muffle Furnace — capable of maintaining temperature within $500 \pm 25^\circ\text{C}$.

A-5.1.2 Crucible — of silica or platinum, having a capacity of 10 ml.

A-5.1.3 Desiccator — containing suitable desiccant.

A-5.2 Reagents

A-5.2.1 Concentrated Sulphuric Acid

A-5.3 Procedure — Heat the crucible in the muffle furnace at $500 \pm 25^\circ\text{C}$ for 10 to 15 minutes, allow to cool sufficiently to enable it to be transferred to a desiccator. When cool, weigh it to the nearest 0.1 mg. Weigh 5 g of the dried material, accurately to the nearest 0.1 mg, into the crucible and moisten with 2 ml of concentrated sulphuric acid. Heat the crucible and its contents gently over a bunsen flame. Allow the material to fume and evaporate to a residue in a well-ventilated fume cupboard. Then ignite the residue in the muffle furnace at $500 \pm 25^\circ\text{C}$, until it is free from visible specks of carbon. Cool the crucible in the desiccator and weigh to the nearest 0.1 mg. Repeat the heating for 15 minutes followed by cooling and weighing until two successive weighings do not differ by more than 0.5 mg.

A-5.4 Calculation

$$\text{Sulphated ash, percent by mass} = \frac{100 M_1}{M}$$

where

M_1 = mass in g of the residue, and

M = mass in g of the material taken for the test.

A-6. DETERMINATION OF PRIMARY AMINES

A-6.0 Principle of the Method — The method is based on extraction of the amines from an ethereal solution of the diphenylamine by hydrochloric acid, diazotization of the extract followed by coupling with R-salt (sodium 2-naphthol-3, 6-disulphonate). The quantity of R-salt required is a measure of the primary amines present.

A-6.1 Reagents

A-6.1.1 Ether — See IS:336-1975*.

A-6.1.2 Dilute Hydrochloric Acid — approximately 1 N.

A-6.1.3 Sodium Nitrite Solution — 4 percent (m/v).

A-6.1.4 Starch Iodide Paper — Mix 5 g of starch with small amount of cold water and paste it. Add this paste to 500 ml boiling water and stir well. Cool and add an aqueous solution of 1 g of potassium iodide. Soak pieces of filter paper in this solution and allow to dry in a clean dark place. Store them in brown coloured bottle.

A-6.1.5 Sodium Carbonate Solution — 20 percent (m/v).

*Specification for ether (second revision).

A-6.1.6 Aniline — freshly distilled.

A-6.1.7 Standard R-Salt Solution — 0.05 N — Dissolve 17.4 g of R-salt in a small quantity of water, make up the volume to 1000 ml and filter.

Standardization — Weigh accurately 2.3 g of aniline in a 500-ml volumetric flask and make the volume to 500 ml with dilute hydrochloric acid solution. Diazotise 25 ml of this solution and titrate with R-salt solution as described in **A-6.2**. Calculate the aniline equivalent in gram of 1 ml of R-salt solution.

A-6.2 Procedure — Dissolve 50.000 g of the material in 200 ml of ether and extract the solution three times with 30 ml of dilute hydrochloric acid in a separating funnel. Combine the aqueous extracts and wash once with 50 ml of ether. Heat the extract on a water-bath to expel excess of ether and make up the volume to 250 ml with water.

Take 50 ml of the extract in a 250-ml conical flask, cool below 5°C by placing in an ice-bath and add 5 ml of sodium nitrite solution. Allow to stand for 15 minutes below 5°C and check for the positive test. Repeat the above operation with each 5 ml addition of sodium nitrite solution till the solution shows a positive test with starch iodide paper. Pour the above diazotized solution into a 500-ml beaker containing 10 ml of sodium carbonate solution. Place in an ice-bath to maintain the temperature of the test solution below 5°C and titrate with R-salt solution until an end point (see **A-6.2.1**) is reached.

A-6.2.1 Spot a drop of the test solution as well as that of R-salt solution (not from the burette) closely on a filter paper. Absence of any red colouration at the junction of the two spots indicates the end point.

A-6.3 Calculation

Primary amine (as aniline), percent by mass = $V \times X \times 10$

where

V = volume in ml of R-salt required for the titration, and

X = aniline equivalent in g of 1 ml of R-salt solution.

A-7. DETERMINATION OF ORGANIC BASES ALKALINE TO METHYL ORANGE

A-7.1 Reagents

A-7.1.1 Dilute Hydrochloric Acid — 1:1 (v/v).

A-7.1.2 Dilute Sodium Hydroxide Solution — approximately 10 percent.

A-7.1.3 Standard Hydrochloric Acid — 0.1 N.

A-7.1.4 Phenolphthalein Indicator — 0.5 percent (*m/v*). Dissolve 0.5 g of phenolphthalein in 100 ml of rectified spirit (*see* IS :323-1959*) and make it faintly pink by the addition of sodium hydroxide solution.

A-7.1.5 Methyl Orange Indicator — Dissolve 0.1 g of methyl orange in 100 ml of water.

A-7.2 Procedure — Dissolve 20 g of the material in 50 ml of ether and extract with four successive 30 ml portions of dilute hydrochloric acid. Transfer the extracts to a steam distillation flask and boil off the ether. Make the contents of the flask alkaline by the addition of dilute sodium hydroxide solution and steam distil into 10 ml of dilute hydrochloric acid until the small quantity of diphenylamine which has passed into solution during extraction of the ether solution has distilled over. The more volatile bases will also pass over completely during this operation. Make the solution neutral to phenolphthalein by the addition of dilute sodium hydroxide solution. Add methyl orange and titrate the bases with hydrochloric acid.

A-7.3 Calculation

$$\text{Organic bases alkaline to methyl orange} = \frac{9.3 \times V \times N}{M}$$

(as aniline), percent by mass

where

V = volume in ml of standard hydrochloric acid solution used in the titration,

N = normality of standard hydrochloric acid solution, and

M = mass in g of the material taken for the test.

A-8. DETERMINATION OF ORGANIC MATTER INSOLUBLE IN ETHER-ALCOHOL MIXTURE

A-8.1 Reagent

A-8.1.1 Ether-Alcohol Mixture — 2:1

A-8.2 Procedure — Weigh 20.0 g of the material and dissolve in 150 ml of ether-alcohol mixture taken in a 250-ml conical flask, by warming, if necessary. Filter the solution through a weighed sintered glass crucible (porosity 3) or Gooch crucible or similar filter and wash the residue three times with 20 ml of ether-alcohol mixture. Dry the crucible in an oven at 95 to 100°C, cool in a desiccator and weigh.

*Specification for rectified spirit (*revised*).

A-8.3 Calculation

$$\frac{\text{Matter insoluble in ether-alcohol mixture, percent by mass}}{M} = \frac{M_1 \times 100}{M}$$

where

M_1 = mass in g of the residue, and

M = mass in g of the material taken for the test.

APPENDIX B

(Clause 4.1)

SAMPLING OF DIPHENYLAMINE

B-1. GENERAL REQUIREMENTS OF SAMPLING

B-1.0 In drawing, preparing, storing and handling test samples, the precautions and directions given in **B-1.1** to **B-1.8** shall be observed.

B-1.1 Sampling instrument shall be clean and dry.

B-1.2 Samples shall be taken at a place protected from damp air, dust and soot.

B-1.3 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

B-1.4 To draw a representative sample, the contents of each container selected for sampling shall be mixed as thoroughly as possible by suitable means.

B-1.5 The samples shall be placed in clean, dry and air-tight glass or other suitable containers on which the material has no action.

B-1.6 The sample containers shall be of such a size that they are almost but not completely filled by the sample.

B-1.7 Each sample container shall be sealed air-tight after filling and marked with full details of sampling, the date of sampling, year of manufacture, and other important particulars of the consignment.

B-1.8 Warning given under **A-1.1** shall be taken care of while handling the material.

B-2. SCALE OF SAMPLING

B-2.1 Lot — All containers in a single consignment of the material drawn from a single batch of manufacture shall constitute a lot. If a consignment is known to consist of different batches of manufacture, containers belonging to the same batch of manufacture shall be grouped together and each such group shall constitute a separate lot.

B-2.2 For ascertaining the conformity of the lot to the requirements of this specification samples shall be tested on each lot separately. The number of samples to be selected shall depend on the size of the lot and shall be in accordance with Table 2.

TABLE 2 SCALE OF SAMPLING

LOT SIZE (<i>N</i>)	NO. OF CONTAINERS TO BE SELECTED (<i>n</i>)
(1)	(2)
Up to 15	3
16 to 50	4
51 „ 100	5
101 „ 150	6
151 „ 300	7
301 „ 500	8
501 „ 800	9
801 and above	10

B-2.3 These containers shall be selected at random. In order to ensure the randomness of selection, procedures given in IS:4905-1968* may be followed.

B-3. TEST SAMPLES AND REFEREE SAMPLE

B-3.1 From each of the containers selected as in B-2.2, draw with an appropriate sampling instrument small portions of the material from different parts of the container. The total quantity so drawn from each of the containers shall be approximately equal to thrice the quantity required for testing purposes.

B-3.2 Mix thoroughly all the portions of the material drawn from the same container to give a representative sample for the container.

*Methods for random sampling.

B-3.3 From the samples (**B-3.2**) representing different containers selected in **B-2.2**, a small but equal quantity of material shall be taken and thoroughly mixed to form a composite sample. The composite sample so obtained shall be divided into three equal parts, one for the purchaser, another for the supplier and the third for the referee.

B-3.4 The remaining portion of the material in the samples (**B-3.2**) from different containers shall be divided into three equal parts, each forming an individual sample. One set of individual samples representing the (n) containers selected shall be for the purchaser, another for the supplier and the third for the referee.

B-3.5 All the individual and composite samples shall be transferred to separate containers. These containers shall then be sealed air-tight with stoppers and labelled with full identification particulars given in **B-1.7**.

B-3.6 The referee samples consisting of composite sample and a set of (n) individual samples shall bear the seals of both the purchaser and the supplier and shall be kept at a place agreed to between the two. These shall be used in case of any dispute between the two.

B-4. NUMBER OF TESTS

B-4.1 Tests for crystallizing point and acidity shall be conducted on each of the individual samples (*see* **B-3.4**).

B-4.2 Tests for remaining characteristics given in Table 1 shall be conducted on the composite sample (*see* **B-3.3**).

B-5. CRITERIA FOR CONFORMITY

B-5.1 Individual Samples — The lot shall be declared as conforming to the requirements tested on individual samples if each of the test results satisfies the corresponding requirement given in Table 1.

B-5.2 The lot shall be declared as satisfying the remaining requirements if all test results on the composite sample satisfy the corresponding requirements given in Table 1.

B-5.3 For declaring conformity of the lot to the requirements of this specification **B-5.1** and **B-5.2** shall be satisfied.

INDIAN STANDARDS

ON

ORGANIC CHEMICALS (MISCELLANEOUS)

IS:

245-1970	Trichloroethylene, technical (<i>second revision</i>)
717-1969	Carbon disulphide, technical (<i>first revision</i>)
718-1970	Carbon tetrachloride (<i>first revision</i>)
869-1969	Ethylene dichloride (<i>first revision</i>)
3321-1973	Formaldehyde solution (<i>first revision</i>)
4306-1973	Hexamethylenetetramine (hexamine) (<i>second revision</i>)
4566-1968	Methylene chloride (dichloromethane), technical
5149-1969	Maleic anhydride, technical
5158-1969	Phthalic anhydride, technical
5254-1969	Acetanilide
5271-1969	Paraformaldehyde
5296-1969	Chloroform, technical and analytical
5297-1969	Perchloroethylene (tetrachloroethylene)
5341-1969	Benzyl chloride, technical
6716-1972	Benzoic acid, technical
6718-1972	Phenoxyacetic acid
6768-1973	<i>m</i> -Aminophenol
6775-1973	Ethyl chloride, technical
6971-1973	2-ethyl hexan-1-ol
6972-1973	Benzotrichloride, technical
7619-1974	Pentaerythritol
7901-1975	Triethanolamine, technical
7910-1975	Monoethanolamine
7911-1975	Diethanolamine
7918-1975	Diethylene glycol
8050-1976	Alpha picoline
8058-1976	Pyridine

INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephone : 27 01 31 (20 lines)

Telegrams : Manaksanstha

Regional Offices:

		Telephone
Western : Novelty Chambers, Grant Road	BOMBAY 400007	37 97 29
Eastern : 5 Chowringhee Approach	CALCUTTA 700072	23-08 02
Southern : C.I.T. Campus, Adyar	MADRAS 600020	41 24 42

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 91
'F' Block, Unity Bldg, Narasimharaja Square	BANGALORE 560002	2 76 49
Ahimsa Bldg, SCO 82-83, Sector 17C	CHANDIGARH 160017	2 83 20
5-8-56/57 L. N. Gupta Marg	HYDERABAD 500001	4 57 11
117/418B Sarvodaya Nagar	KANPUR 208005	82 72
B.C.I. Bldg (3rd Floor), Gandhi Maidan East	PATNA 800004	5 36 55
Hantex Bldg (2nd Floor), Rly Station Road	TRIVANDRUM 695001	32 27